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| EXAMINER |
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KRUER, KEVIN R

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| ART UNIT | PAPER NUMBER |
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1773

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,623

Applicant(s)

SCHNEIDER, MARC H.

Examiner

Kevin R Krueer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 22-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/761,699.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/5/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. The pending application is a divisional application of 09/761,699, filed January 18, 2001; now US patent 6,673,395.
2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/761,699, filed on January 18, 2001.

Specification

3. The disclosure is objected to because of the following informalities: the limitations of original claims 4-9 need to be incorporated into the specification. Appropriate correction is required.

Information Disclosure Statement

4. The information disclosure statement filed November 5, 2003 has been considered.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

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possession of the claimed invention. The claim is not supported by the original disclosure. Specifically, the original disclosure is silent to "a shell that extends from a depth of 2mm below the exterior surfaces of the composite to a deeper depth."

Original claim 2 states that the monomers may be distributed within a shell below the exterior surfaces and ends 2 mm deep and deeper. However, this embodiment and the embodiment of pending claim 26 do not seem to agree in scope.

7. Claims 22-31 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The initial water content of the wood, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The specification states, "An **essential** feature of the present invention is to use starting wood material having a high moisture content." (page 3, lines 8-10). Furthermore, example 1 on Table 9 and the disclosure on page 16, lines 6+ shows that wood with too high of a moisture content cannot be penetrated.

8. Claims 22, 23, and 25-31 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The combination of the low, medium, and high temperature initiators, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Applicant discloses, "The specific mixture of polymerizable monomer and additives. . . is important for producing odorless materials (page 3, lines 1+)." Applicant further states, "To obtain complete cure and low emissions from the finished product, it was found that a combination of initiators is

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needed. A lower temperature initiator starts the reaction, a second (higher temperature) carries it on and a third (highest temperature) finishes it (page 4, lines 12+)." Applicant attention is also directed to examples 9-16 in Table 3. Examples 9-16 comprise the same composition and are impregnated and cured in a similar/identical fashion. Examples 9-12 and 13-16 differ from one another in that Examples 9-12 do not comprise a low temperature initiator. The data shows that examples 9-12 are inferior with regard to odor, color and degree of conversion.

9. Claims 22-31 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The minimum amount of each initiator, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Specifically, applicant states, "Below the minimum value (of quantities of the initiators) it will not work (page 4, lines 24+)."

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 22-25 and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kenaga et al (US 3,787,344).

Kenaga teaches a wood-polymer composite comprising a wood impregnated with a solution of vinyl aromatic monomer and a crosslinking agent (abstract). The aromatic

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monomer is styrene or alkyl styrene such as T-butyl styrene (col 1, lines 16+). The crosslinking agent is divinyl benzene, dimethacrylate or ethylene glycol dimethacrylate (col 1, lines 38+). The composition may further comprise a wax (col 1, lines 35+) and an initiator (claim 1). The impregnation technique is either evacuation of the wood then immersion or submersion under atmospheric or superatmospheric pressure then immersion (col 1, lines 57+). The composite is cured by heating at 80-150°C for 10-60 minutes (abstract).

With regard to the limitation of claim 22 that the polymerization is initiated by three initiators, the courts have held that the method of making a product does not patentably distinguish a claimed product from a product taught in the prior art unless it can be shown that the method of making the product inherently results in a materially different product. The examiner takes the position that the composite taught in Kenaga anticipates the claimed composite because it comprises the same wood base impregnated with the same cured polymer as the claimed invention.

With regard to the specifically claimed initiators of claim 24, the examiner takes the position that said initiators react during polymerization and do not patentably distinguish the claimed composite from a composite taught by Kenaga. Specifically, the composite taught in Kenaga anticipates the claimed composite because it comprises the same wood base impregnated with the same cured polymer as the claimed invention.

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The examiner takes the position that the wax taught in Kenaga inherently acts as "a polymerization moderator and water repellant for the composite" because said wax is compositionally identical to the wax claimed by applicant.

With regard to claim 31, Kenaga teaches that the composite may be a cue. The examiner takes the position that a cue reads on the claimed "pole."

With regard to claim 30, the examiner takes the position that the wood-polymer composite of Kenaga is capable of being used as a railway sleeper.

With regard to claim 29, Kenaga teaches that the composite may be a floor. The examiner takes the position that the flooring reads on the claimed "sawn" wood product.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenaga et al (US 3,787,344), as applied to claims 22, 23, 25, and 29-31 above, and further in view of Maine (US 3,790,401).

Kenaga is relied upon as above, but does not teach that the monomers should be distributed in a shell that extends from a depth of 2mm below exterior surfaces or deeper. However, Maine teaches a wood-polymer composite comprising a wood impregnated with t-butylstyrene (abstract). Maine teaches that the wood does not necessarily have to be impregnated throughout (col 2, lines 43+). The time of the

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impregnating cycle can be shortened if the wood is not impregnated throughout.

Therefore, it would have been obvious to one of ordinary skill in the art not to impregnate the wood throughout, thus resulting the monomers being distributed in a shell that extends from the surface of the composite. The motivation for doing so would have been to reduce the time of the impregnating cycle.

14. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenaga et al (US 3,787,344), as applied to claims 22, 23, 25, and 29-31 above, and further in JP 74-004922A (herein referred to as Showa).

Kenaga is relied upon as above, but does not teach the amount of polymer that should be added to the composite. However, Showa teaches that the amount of polymer impregnated into the wood effects the impact strength of the composite (abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the amount of polymer added to the composite taught in Kenaga. The motivation for doing so would have been to optimize the composite's impact strength.

The examiner notes that the density of the composite will increase as the amount of polymer resin increases. Specifically, the polymer displaces a lower density component (air). Thus, the density of the composite will necessarily be indirectly optimized with the amount of polymer added to the composite.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenaga et al (US 3,787,344), as applied to claims 22, 23, 25, and 29-31 above, and further in view of JP 62-152802A (herein referred to as Nippon).

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Kenaga is relied upon as above, but does not teach that the wood-polymer composite should comprise the claimed moisture content. However, Nippon teaches a wood-polymer composite wherein the wood substrate is pre-conditioned so as to have a moisture content of 8-18%. The resulting composite is dimensionally stable. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to precondition the wood substrate of Kenaga so that its moisture content was 8-18%. The motivation for doing so would have been to improve the composite's dimensional stability.

The examiner notes that the moisture content will inherently decrease during curing as a result of the heat evaporating the moisture in the wood. Thus, the composite will necessarily have a moisture content of between 0-18% after curing.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fan et al (US 4,618,647) discloses the use of multiple initiators to polymerize an unsaturated monomer.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773